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EXECUTIVE OFFICE OF THE PRESIDENT  
BUREAU OF THE BUDGET  
WASHINGTON 25, D. C.

SEP 15 1958

*Declassified 12/11/79  
Mansur  
H.A.H.*

MEMORANDUM FOR GENERAL GOODPASTER

Subject: Conduct of space programs



In view of the President's interest in space programs, we consider it desirable to bring to your attention a specific problem bearing on the relationship of the Department of Defense and the National Aeronautics and Space Administration in the conduct of space programs. The problem arises out of a recent unilateral reprogramming action by Defense's Advanced Research Projects Agency to initiate development of a 1.5 million pound thrust rocket propulsion system. ARPA's action, in effect, represents a test case in responsibility for conducting such programs and in the establishment of military requirements for such programs. We consider the problem especially significant in view of the President's express desire that a single individual, presumably the administrator of NASA, be responsible for taking the lead in space programs that are not peculiarly or primarily military.

DECLASSIFIED  
E.O. 12958, SEC. 1.2  
OMB Guidelines, May 1979  
NA99 D 11/11/79  
Bv DJH

During July 1958, Dr. Killian, Mr. Quarles, Dr. Dryden, and Mr. Stans discussed the fiscal year 1959 space programs of Defense and NASA. The overall settlement was approved by the President.

In accordance with these discussions, decisions were made to transfer from Defense to NASA responsibility and funds for development of two advanced propulsion systems: a 1 - 1.5 million pound thrust, single-chamber, liquid propellant engine and the nuclear rocket propulsion system (ROVER) for which AEC is developing the reactor. Funds programmed by Defense for study of a one million pound thrust solid propellant rocket engine are also to be transferred.

These decisions were based on the fact that the engines involved were not "peculiar to or primarily associated with" weapons systems or military operations and, therefore, should be the responsibility of NASA. Furthermore, there appeared to be general agreement, except perhaps in some quarters in the Department of Defense, that at that time there were no definitely foreseeable military requirements for such engines.

Since the new single-chamber engine is at best some five years away and the nuclear rocket is still more distant, NASA and ARPA, subsequent to the July decisions, discussed ways of achieving high thrust propulsion systems at an earlier date through the "clustering" of existing rocket

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engines, such as the ICBM-IREM engines. We understand that this suggestion was first made by NASA. Accounts of these discussions differ, but it seems clear that no agreement was reached with respect to the most desirable technical approach, the method of proceeding, or which agency should have responsibility.

On August 15, 1958, ARPA placed an order with the Army Ballistic Missiles Agency for development of a propulsion system in the 1 - 1.5 million pounds thrust class based on the clustering of eight JUPITER engines. The immediate objective of the program is said to be the full-scale captive testing of the engine by the end of calendar year 1959. ARPA has programmed approximately \$15 million for this work during fiscal year 1959 and has estimated total cost of the development at \$25-35 million. It is not clear that this amount includes flight testing of the engine, but it appears unlikely that it would be sufficient for that purpose. ARPA has stated that it expects to be able to use this propulsion system to place a 25,000 pound payload in a 300-mile orbit by 1961. Cost of payload development is not included in the foregoing estimate.

When the Bureau of the Budget was advised of ARPA's action, it was pointed out to staff of ARPA that this project had not been among those approved or even discussed in July and that it appeared to be inconsistent with decisions made at that time on responsibility for developing systems of similar thrust. The matter was brought to the attention of Dr. Killian, who agreed that there was a question as to which agency should be responsible and who suggested that it might be desirable to seek the advice of the National Aeronautics and Space Council (NASC) which was shortly to be established. Since Dr. Glennan had not yet arrived in Washington, the matter was also discussed with Dr. Dryden who stated that no specific agreement had been reached with ARPA and that the question of responsibility needed to be resolved.

On September 4, 1958, representatives of the Bureau of the Budget advised Mr. Johnson of ARPA that pending resolution of the problem, the Bureau planned to place in budgetary reserve the funds programmed for the project. The Bureau representatives did not suggest that work on the project be halted. Mr. Johnson expressed the views that the project was not inconsistent with the July decisions which had dealt only with specific propulsion systems, that the ARPA project had been initiated in support of military requirements, including manned space flight requirements, and, in effect, that ARPA had to be free to do whatever it considers necessary for military purposes. Mr. Johnson expressed similar views in a memorandum of September 5, 1958, to Mr. Quarles, a copy of which is attached.

On September 12, 1958, Defense released to the press an announcement concerning the initiation of the project. The story appeared on the front page of the Washington Post, September 13, 1958.

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The Bureau of the Budget is concerned about this situation for the following reasons:



1. While the decisions made in July did not by any means resolve all the questions affecting the future relationships of Defense and NASA, they did at least provide a workable settlement for the current year as well as a partial basis for future decisions. ARPA's recent action implies that there is not, as far as ARPA is concerned, any way to draw a line between the two agencies in the area of space technology developments which might be used for either military or non-military applications. Up to this time, we had assumed that developments of possible interest to both agencies would be the responsibility of NASA and that Defense would take the lead only where peculiarly or primarily military developments, rather strictly defined, were concerned. ARPA clearly feels that it should be free to proceed unilaterally whenever it considers military interests to be involved. We feel that it will not be possible to plan and implement a sound total national space program if ARPA is permitted to proceed in the manner exemplified by the present case of the 1.5 million pound thrust engine.

2. ARPA justifies its action on its conclusion that military payloads of 25,000 pounds will be needed by 1961. ARPA believes that such payloads are required for longer-lived reconnaissance satellites than those now planned and also for offensive, defensive, and logistic military weapons systems. It is not clear whether ARPA's views on these subjects have been reviewed or approved by other responsible agencies and officials in the Department of Defense. ARPA's judgments, if correct, would have truly revolutionary implications with respect to currently planned weapons systems and strategy, much of which would rapidly become obsolete, and also with respect to international relations and the Federal budget. We recall that the "Introduction to Outer Space" issued by the President's Science Advisory Committee March 26, 1958, took an open-minded but essentially skeptical view of military applications of space vehicles except in the areas of reconnaissance, communications, and meteorology. If it is now clear, as ARPA believes, that other types of space weapons systems, both offensive and defensive, are not only technically feasible but constitute "pressing military needs," there will be a need for some fundamental adjustments on earth as well as in space. We feel that the policy implications should receive formal consideration both within Defense and at the NASC and NSC level before major reorientations in the "space" programs are made on the basis of the views now being put forward by ARPA.

As Mr. Johnson has been advised, it is proposed to place in reserve the funds reprogrammed for the ARPA project; however, we understand that ARPA would propose to continue the project by reprogramming still other funds. If it is concluded that this project is technically sound and desirable, we believe that responsibility for it should be transferred to NASA along with the related projects concerning which decisions were made in July. A decision

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in this case can help clarify the long-run roles of ARPA and NASA along the lines we believe originally intended by the President and contemplated in the space act.

Mr. Quarles is now on vacation. It is not known whether the problem has been brought to the attention of Mr. McElroy.

*Walter T. Raus*

Acting Director

Attachment

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